



**Airvac**

The **world leader** in vacuum sewer collection technology.

# Safe/Sanitary Sustainable Economical Flexible Proven

Building/Industrial  
Wastewater and Liquid  
Vacuum Collection  
System

A brand of  
Aqseptence Group





# Safe/Sanitary



**Airvac**

Building/Industrial Wastewater and Liquid Vacuum Collection System

*Water stewardship, workplace safety, and sanitation are all an integral part of sustainable business goals.*

## Safe Sanitation Goals

An increasingly important topic for businesses is safe sanitation in the workplace. This is not only important for the health and safety of its employees, but also for the communities that surround them. Water stewardship, workplace safety, and sanitation are all an integral part of sustainable business goals. Airvac vacuum systems can help businesses achieve these goals.

## Safe Liquid Transportation

Since our system operates under negative pressure, it is virtually leak proof. There is no infiltration or exfiltration into, or from, the piping. Dual containment piping is not required since the system is always under vacuum. Gravity and low-pressure systems require a "pipe within a pipe" to catch any chemicals or liquids that could potentially escape. With vacuum, air pulls in, so liquids don't leak out. This is especially important for industrial applications, such as cleanrooms or when dangerous chemicals need to be transferred.

Vacuum protects people, products, and the facility.

## Less Risk of Contamination

The vacuum toilets used in our system are the most hygienic in the world. When vacuum toilets are flushed, there is no spray or formation of aerosols, avoiding direct contact to viruses and bacteria. Additionally, there is no cross contamination and no germ transmission to other connected toilets. There is no exfiltration, and no wastewater exits the pipes, even if the pipes are cracked or broken.

The system can be designed to separate both grey and black wastewater and is also capable of collecting greasy wastewater. Multiple waste streams can be collected and discharged separately from facility sources to various evacuation units. Because maintenance is performed outside of controlled environments, there is never the danger of contamination in these workspaces. Where maintenance is performed, operators are not exposed to raw sewage or work in confined areas, minimizing their risk of exposure to viruses, bacteria, parasites, or harmful gases such as methane and hydrogen sulfide. With our newest technologies, they also experience noise and heat reduction at the vacuum stations. This provides them with a more safe and comfortable work environment.

It's a modern system which stands for hygiene and cleanliness – not only today, but also in the future.

## Problem Solving for a Global Pharmaceutical and Medicine Manufacturing Company

This pharmaceutical and medicine manufacturing company required a design for a cleanroom vacuum wastewater conveyance system. Very hot and very cold high velocity wash waters were to be collected from production areas, separated via the system, and sent to onsite WWTP in a cleanroom environment.



# Sustainable



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Building/Industrial Wastewater and Liquid Vacuum Collection System

*Airvac can assist you with LEED, Acqua, Edge, and Net Zero certifications for your building regarding water conservation and usage.*

## How It Works

Airvac develops and delivers proven technologies and innovative solutions for the responsible handling of water.

Airvac vacuum systems use differential air pressure for the collection of process water from vacuum plumbing fixtures and interface valves through the vacuum piping network, which leads to a vacuum central assembly. Water consumption is significantly reduced compared to traditional sanitation technology, and high flow velocities prevent sedimentation in the pipework.

Because the system can separate various types of wastewaters, some non-potable water can be recycled and used for such things as irrigation. This can conserve a substantial amount of the high-quality potable water supply.

## Vacuum Toilets

With our vacuum toilets, water is only used to affect a hygienic cleaning of the toilet bowl. Water usage per flush is thereby reduced by 85% as compared to traditional toilets, reducing potable water use. This results in both ecological and economic benefits for your building.

## Energy Savings

Our vacuum system only requires one power source to operate the entire system. In the event of a power outage, back-up generators can keep the system fully operational. Evacuation units are available for all kinds of wastewater in the building such as vacuum toilets, sump assemblies to recover condensate, and evacuation units. Since no power is required at the various points of extraction, energy use is kept to a minimum.

Airvac can also assist you with LEED, Acqua, Edge, and Net Zero certifications for your building regarding water conservation and usage.

## Problem Solving for a Worldwide Entertainment, Parks, and Resorts Company

Noted as this company's highest end vacation rentals, 20 bungalows were developed on a pier structure overwater. In addition to collecting the wastewater from each bungalow, drain water from twenty 1,000 gallon plunge pools were to be collected as well. The challenge was to design a wastewater collection system where piping could be securely fastened to the pier and buried on land, while maintaining a visually pleasing appearance.



# Economical



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Building/Industrial Wastewater and Liquid Vacuum Collection System

*For system planning, Airvac uses Building Information Modeling (BIM) to increase plan accuracy, improve margins, and mitigate risks.*

## Economical

Vacuum systems are extremely economical regarding the saving of water, and are very flexible to use, and require little maintenance. The flexibility of the vacuum system and piping, during design and installation, allows the designer and contractor to easily overcome unforeseen obstacles, saving money.

## Cost Savings

Historically, the cost of installing vacuum piping closely resembles the cost of installing a water distribution system and is significantly less expensive than a traditional gravity system. The cost savings are even more significant when retrofitting an existing building. Pipe installation flexibility reduces overall construction costs and construction duration is up to 60% shorter.

## System Planning

For system planning, Airvac uses Building Information Modeling (BIM) to increase plan accuracy, improve margins, and mitigate risks. This can significantly reduce overall planning and construction costs. The flexibility of the vacuum system and piping, during design and installation, allow the designers and contractors to easily overcome unforeseen obstacles, whereas traditional gravity systems can require lengthy work stoppages and costly change orders.

## Installation

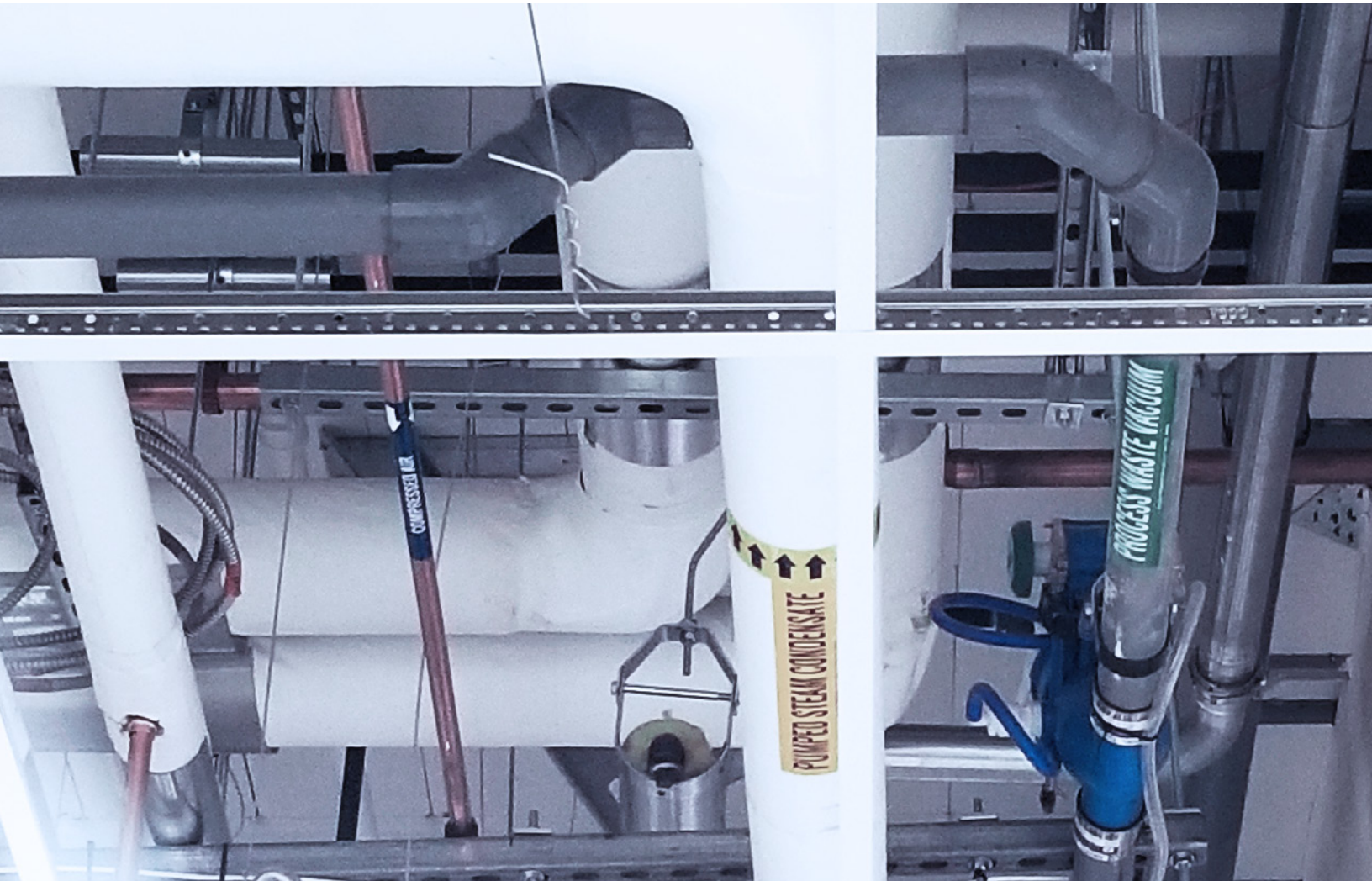
Proper installation, operation, and maintenance provide businesses consistent economic planning. This can be obtained through a service agreement with Airvac, or through in-depth training for existing or contracted construction and maintenance staff. Training is provided free of charge by Airvac.

## Problem Solving for a Global Personal Paper Product Manufacturer

Excavation of the older sites were not safe or practical. Site challenges included a high water table and multiple underground hazards such as unknown utilities and buried chemicals. There were also areas of high truck traffic subject to frequent ground shifting. They also required a brownfield site alternative for a wastewater conveyance system.



# Flexible



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Building/Industrial Wastewater and Liquid Vacuum Collection System



*Our system has the ability to lift wastewater and liquids up to 20' vertically and transport them horizontally over long distances.*

## **Flexibility Challenges**

Today's buildings must be flexible in their design and construction. Company downsizings, tenant "churn rates" and the need for customized upgrades and renovations are only some of the challenges of wastewater and sanitation systems (both grey and black water) that facility and property managers face.

## **Layout Flexibility**

Our system has the ability to lift wastewater and liquids up to 20' vertically and transport them horizontally over long distances.

Airvac vacuum technology systems provide unmatched layout flexibility that guarantees a collection solution for every square foot of your building. The system can also manage when and where to discharge wastewater.

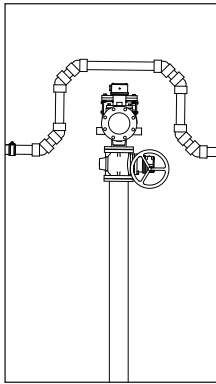
Piping can be installed behind walls, in ceilings, or in floors and does not require gravity to move the liquids. Flexibility allows pipes to go around stationary objects such as air ducts, bulkheads, and other utilities. Since the system only requires small diameter piping, tight spaces become usable spaces. With this type of flexibility, future expansion can easily be accommodated.

## **Problem Solving for a Global Beauty Products Company**

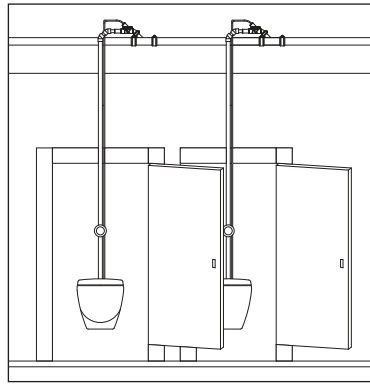
A gravity drainage system was not practical within the existing and new building. The owners did not want to disturb the floor slab and desired limited soil excavation. They also needed flexibility for later building expansions and renovations. Areas affected included R&D and Pilot Plant Operations. This company will be seeking LEED certification for their building.

# Proven

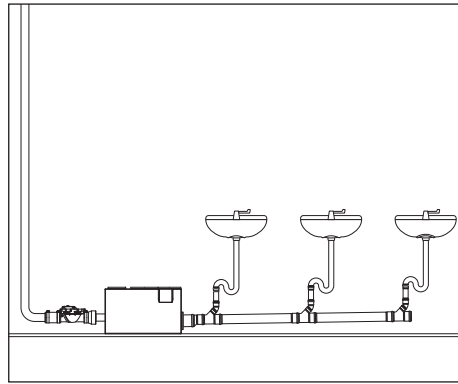
## Example Configurations



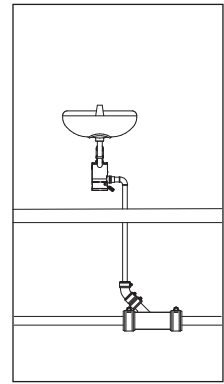
Easily install around obstacles.



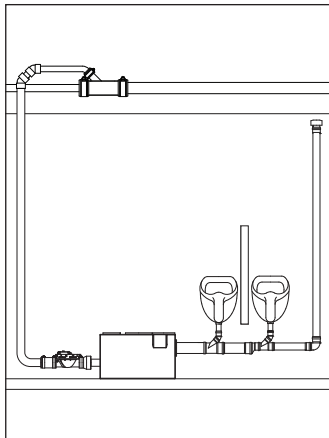
Airvac Vacuum Toilets



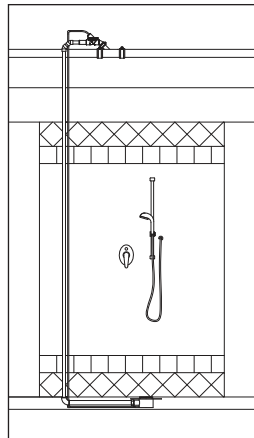
Sinks with 1 1/2" Vacuum Valve



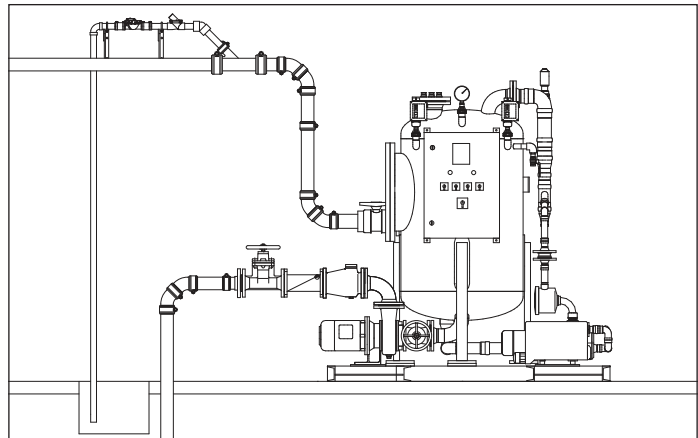
Sink with AE25 Unit



Urinals with 1 1/2" Vacuum Valve



Shower with Vacuum Floor Drain



Type 140 Vacuum Station and Sump Pit with a 1 1/2" Vacuum Valve



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# Airvac

Our diverse experience in customizing applications in various building types, such as R&D facilities, conference centers, stadiums, arenas, airports, train stations, distribution centers and warehouses has fueled our constant innovation process.

## Advantages

- Vertically lift liquid up to 20' without electricity at the source
- Eliminate blockages due to high scouring velocities
- No infiltration or exfiltration into/from piping
- Construction duration is up to 60% shorter and installation cost less since piping can be installed in walls and ceilings
- Contaminated liquids can be separated
- Maintenance outside of controlled environments
- Indoor, Outdoor and Integrated Systems
- Airvac can provide the maintenance required to keep your system operating efficiently

## How it Works

- Liquid flows from facility sources to various evacuation units
- Normally closed pneumatic interface valve opens & constant vacuum within the piping pulls liquid into the pipe
- Vacuum station applies negative pressure to the small diameter piping network & centrally collects the liquid
- Multiple waste streams can be collected & discharged separately

## Applications

- FDA Regulated and Food Processing Facilities
- Manufacturing Sites (Steel, Power & Chemical Plants)
- Brownfield Site Construction
- Green and LEED Projects
- Stadiums, Exhibition Halls, and Arenas
- Transportation: Trains, Planes, and Cruise Ships
- Shopping Centers, Universities, Airports, and Bus Stations

## Problem Solving for a Global Mining Industry Corporation

A gravity sewer and wastewater conveyance system is not practical in the mine. The only viable option is vacuum based technology. This company needed a more sustainable solution for their waste and sewer waters by recycling all grey and black waters from their research and development operations in a closed loop system. Potable water is both expensive and difficult to obtain in the mine and is only used for drinking purposes.

# Components

## Vacuum Stations

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Type 30  
Vacuum Station



Type 50  
Vacuum Station



Type 140  
Vacuum Station



Type 360  
Vacuum Station



PacVac 1  
Vacuum Station



Container  
Vacuum Station



Engineered  
Vacuum Station



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## Toilets

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Porcelain  
Wall Mount Toilets



Porcelain  
Floor Mount Toilet



Stainless Steel Toilets  
(for Ships)

Stainless Steel Toilet  
(for Correctional Facilities)

### Problem Solving for a Global Pharmaceutical and Medicine Manufacturing Company

This company's cleanroom was a in tight space and would not allow for a gravity system. Access to the area was limited and there were many obstacles in place. There was a zero tolerance for system leaks and no room for dual containment.

# Components

## Sumps and Drains

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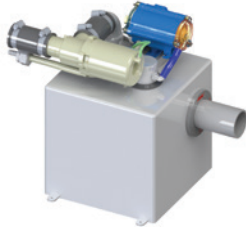
AE25 Unit



Floor Drain



GK Unit



4-Gallon Sump



10-Gallon Sump  
w/ 1 1/2" or 2" Valve



25-Gallon Sump  
w/ 2" Valve



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## Vacuum Valves

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1 1/4" Vacuum Valve



1 1/2" Vacuum Valve



2" Vacuum Valve



3" Vacuum Valve

## Other

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Marina Pump Out



FloorVac Vacuum wand

## Problem Solving for a Leading Aerospace Products and Parts Manufacturing Company

Wastewater collection to protect sensitive environmental areas. The system will segregate the liquids contaminated with jet fuel, water and fire retardants, which could exceed 26K gallons every 5-10 minutes.

Let's discuss your solution!

**1-800-AIRVAC9** or visit [airvac.com](http://airvac.com)

**We provide FREE cost estimates & system layouts.**



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